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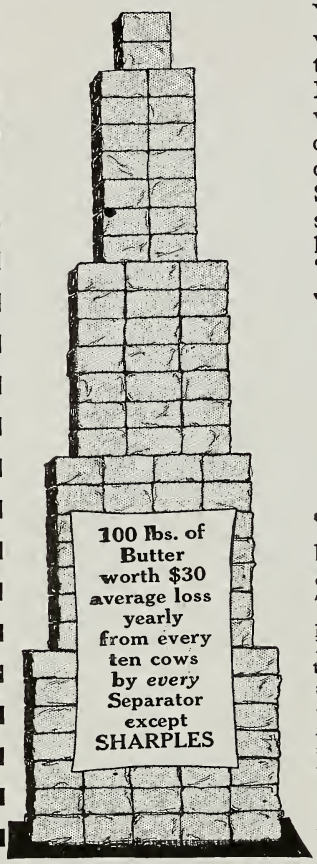

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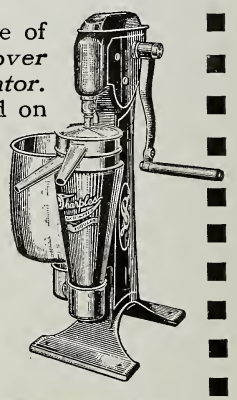

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THE
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WHAT IS THE OUTLOOK FOR POULTRY IN 1917?

How the Small Farm Flock of From 50 to 250 Hens is an Important Factor in Supplying the Markets of Our Large Cities With Eggs

PROFESSOR FREEMAN S. JACOBY, Department of Animal Husbandry,
Ohio State University

THE title of this article might lead one to believe that the writer intends to predict the future of the poultry market for the coming year with special reference to the prices of poultry products. However, in this day and age predictions are likely to fall short of the mark and it is better to look backward one year and carefully scrutinize the general conditions and plan for the coming year with the idea of avoiding past mistakes in judgment.

The farm poultry flocks represent over 90 percent of the 300,000,000 fowls that are tireless in their effort to make the United States the largest poultry producing nation in the world. Consequently, in Ohio and in the other cornbelt states, the important factor in the poultry market is the production of the farm flock. It is because of these flocks of 50 to 250 hens that New York City receives each year over 4,000,000 cases of eggs and is enabled to supply eggs to over 5,000,000 people who would otherwise have to eat bacon without eggs for breakfast and eggless cakes for dinner.

During the year ending March 1 we find that New York city received 4,755,000 cases of eggs as compared to 4,580,000 cases for the year ending March 1, 1916. In view of the fact that New York is the market place of the world as far as eggs are concerned, one naturally asks, why, if more eggs were received during the past year, were prices so much higher than the preceding year. The answer is, that the slight increase over the year 1915 and 1916 was not sufficient to supply the demands of the increased population and markedly increased prosperity. The people of the east have enjoyed eggs during the past 2 years and as a habit once formed is hard to break, it is reasonable to suppose they will demand as many eggs during the coming year.

The high price of grain last fall caused many farmers to dispose of their entire flocks. This caused an immense amount of poultry to be thrown upon the markets at Thanksgiving and Christmas times but owing to the unprecedented prosperity of the country at large, this poultry had been rapidly consumed. There is still considerable dressed poultry in storage but the quantity cannot be large for the price of live poultry at the present time is exceedingly high. Those farmers who were enabled to feed their fowls during the past winter will undoubtedly be able to realize profits commensurate with the cost of feeding. Upon a commercial poultry plant the average cost of producing eggs is about 25 cents a dozen. Remember this includes every item of feed, labor and expenses. Upon the general Ohio farm the cost of pro-

ducing eggs is much less, probably in the neighborhood of 15 cents. Heavy production occurs during the months of March, April, May and June. Consequently the price of eggs during these months largely determines the profitableness of the flock for the year. Those means that storage eggs will reach 35 and 40 cents next winter with fresh eggs correspondingly higher. To secure these 50 cent eggs it is necessary to have mature pullets by November 1 and pullets that mature at that time must be hatched in March and April.

Plymouth Rock Hen at the Poultry Plant, College of Agriculture. One of the 300,000,000 Fowls of the Country That Are Tireless in Their Efforts to Make the United States the Leading Poultry Producing Nation in the World

farmers who still have their flocks of pullets should realize this spring the profits which belong to them for their foresight in refusing to kill "the bird that laid the golden egg."

In order to prepare for the coming year plans should be made at once. Packers are offering 25 to 26 cents a dozen for eggs to put in storage. This

In addition to securing an adequate supply of early hatched pullets, the question of feed deserves special mention. How can the flock be fed at a reasonable cost? Corn must always be the foundation of the poultry ration as it is the most economical as well as the most digestible grain. To corn may be added other grains that are economical

in price and inexpensive to raise. Grains that are unfit for market may be fed to advantage to fowls. Perhaps a patch of waste land may be sown to sun flowers and the crop harvested in the fall for winter feeding. Perhaps a patch of wheat or oats may be grown upon an area too small to harvest to advantage. If cut with a cradle and used as a litter during the cold winter months the hens will respond with eggs sufficient to offset the additional labor involved. The essential point is that when fall arrives the farmer should know how he is going to feed the pullets during the winter. Then when wheat reached $1.50 a bushel and corn $1.10 he will not need to say, "feed is too expensive, chickens must go to market."

The dairyman fills his silo and is prepared for winter. Likewise the farmer should have his storehouse filled with beets for the chickens. Many people expect the hens upon the farm to perform wonders in production with a small amount of grain. Suppose that the dairy farmer constructed a dairy barn, filled it with cows and then bought every item of feed and rented pasture for the cows. Would it be profitable? Why should the farm hen be expected to assume the same handicap in order to receive recognition at the hands of the farmer.

At a recent farmers' institute a farmer's wife related how during the past winter she had purchased meat scraps at $3.00 per 100 pounds to feed the fowls. The returns in increased production showed that the meat scraps yielded a profit of 100 percent upon the investment. Every flock has the potential factor of maximum efficiency. Whether this factor is ever discovered depends not upon the hens but upon the resourcefulness of the owner. Yes, the farm poultry flock has a bright future but the man who discerns the future must have a vision that reaches beyond the corn crib.

Scene During Farmers' Week
Left to Right—Clark S. Wheeler, Dean Alfred Vivian, Rose Morgan, Herbert Quick.

POULTRY AS A SOURCE OF FARM PROFIT

Good Care and Management With Attention to Details Essential to Success

RALPH H. STURGEON, '17

LITTLE attention is given to poultry on the farm by some of our best farmers. Many agricultural graduates have failed to familiarize themselves with the poultry industry. They are not able to practice the best methods in poultry management or to advise others.

Poultry forms a subordinate industry on the farm and it will never displace other agricultural products save on limited areas. We cannot hope to develop poultry production on a large scale on most farms but we can extend and improve the small operations. The poultry industry owes a great deal of its popularity to its adaptability to a large number of conditions. Often the first consideration in the keeping of poultry is not the sale of the products, but home consumption. Conditions on the average farm are such that the keeping of poultry does not absolutely require a large amount of care. Crude methods will suffice, so conditions on the average farm are not improved.

Nothing responds so quickly to good care and management as poultry. It works in well as a profitable side line on the commercial fruit farm. Many other places may be found where poultry works in well. However, on many farms poultry is kept at a loss but by the use of a little labor and common sense these losses may be turned into a handsome profit.

Students Judging Poultry, College of Agriculture

Small flocks have been found to be the most profitable. The flock of 200 to 500 hens seems to be the most desirable. It is not unreasonable to expect a profit of $1.50 per hen in a year. Some report a profit of $2.50 per year on well managed poultry farms. The average for the United States is only 50

cents per year. Poultry as a sole source of income often fails due to a large investment of capital and inexperience. Many poultry men today who have made a success started with a small investment and increased their capital as they gained experience.

Poultry must be of good stock for best results. Arguments in favor of any kind of purebred stock hold in the case of poultry. The average mongrel hen lays 70 eggs per year while the average purebred hen in the egg laying contests lays 150 eggs per year. The most valuable hen is the one that combines the most good qualities. The beautiful feathered bird laying the largest number of eggs per year is the most desirable.

General purpose breeds are to be recommended for the general farm. For those specializing in egg production the smaller breeds are more suitable. Egg production can be increased by the selection of the best layers each year.

Good feeding is necessary for maximum production, but no amount of feeding can change the inborn tendency of a poor producer. Nature must be our teacher in the feeding of poultry. The hen naturally scratches and hunts for her feed, so we must supply the grain in a litter of straw where she can scratch and hunt for it. In nature she finds a large number of insects and tender grass blades which must be substituted when she is confined. Beef scrap in a dry mash, and succulent feeds as rape and beets make good substitutes. The hen lays more eggs in the spring because this is her natural laying season and her surroundings and food are nearly ideal.

Capons at the College of Agriculture

To supply these several things must be noted in building the poultry house. There must be good ventilation without draft. Sunlight is essential in a poultry house for the convenience and health of the fowls while damp quarters are detrimental. Disease spreads and vitality is lowered by damp quarters.

A PROPOSED METHOD FOR DENATURING GRAIN

No Ways at Present for Judge to Tell If Sample Was Shown Previously

WILLIAM L. FRANK, '17

STATE corn and grain shows have been held annually in Ohio and several other states for a number of years. Crops men in agricultural colleges and experiment stations have criticized the management of certain shows for permitting exhibitors to show a sample of grain more than one season. This criticism has caused much comment among exhibitors, judges, and the managers of almost every large show.

At present there is no method by which the judge or the management can prove that a sample has been shown at a previous state show. Vouchers may be required of the exhibitors, but this plan has not been entirely satisfactory. Many exhibitors mail their samples and do not fill out the blanks provided. Some exhibitors resent the requirement as an imposition and a few regard it as a farce while others openly violate or quietly evade it.

Exhibitors at many local and county fairs have become accustomed to showing the same sample of grain year after year. This practice is almost universally followed by exhibitors of all classes of live stock. Fair dates are arranged so that stockmen can make circuits with their herds and in this way exhibitors are encouraged to attend several fairs each season. One class of exhibits deserves no more consideration than another from the management of a show. There are several reasons why these practices are permitted at local shows, but are undesirable in the state grain show classes.

In some classes there would be no local entries if the show was limited to the county or township. By having outside exhibitors bringing in specimens of high quality and excellence, the standards of the show are raised and the number of entries increased. Class standards are made permanent by permitting the same specimens to be shown the following year.

The educational value of a local show depends largely upon the quality and excellence of the exhibits rather than upon their relative merits. Seasonal varieties which occur in the quality of crops can be eliminated from the exhibits by establishing fixed standards of excellence. Frequently many classes in local shows would be represented by inferior specimens if the exhibits were confined to the crop of the current season. Premiums at most local shows are small and would not justify the time and expense now expended in obtaining a prize winning sample. However, if the exhibitor hopes to win 2 or 3 and possibly 5 or 6 prizes on each good sample he may chance to own, he is willing to spend considerable time and money in preparing his exhibits. If a good sample can be shown repeatedly it may induce the owner to show other specimens or to devote special attention to a certain class. Furthermore, the same exhibitors can be depended upon year after year for their support and this is perhaps the most important reason that local shows tolerate a practice that has been so severely criticized.

Large shows including expositions, state fairs, state grain and corn shows, present a different set of conditions. The educational value of these depends primarily upon the merit of the current season's crops. This at first seems contradictory but is apparent when the purpose of the large shows, their re-

lation to the small shows, and the position of each with respect to the farmer is considered. The poorer samples are eliminated in the local shows and only the choice samples are sent to the large shows. Large shows set the standards of type, quality and excellence. Small shows of local character are the schools where local people can study the methods and types which are approved by the larger shows. By admitting samples of recognized merit to competition in local shows, patterns or models are afforded local exhibitors in selecting samples for future state and other large shows.

The state show should be an annual affair and all other shows within the state should be subsidiary to it. It should be a contest between products of the same season from all parts of the state, and should in some degree measure the progress of crop improvement as illustrated in the grain show classes. A separate class for "past winners" could be made if it seemed necessary to admit old grain to competition.

Because of the extensive territory from which exhibits are received at the larger shows, there is no need for offering special inducements to exhibitors in order to maintain a high standard of quality and excellence in exhibits. Seasonal variation is a less important consideration in large shows as is also the number of entries. Large shows usually pay larger premiums than local shows and there is no need of permitting a sample to be shown several times. Then too if the farmer is to be benefited by the state grain shows and other large shows, he must be given an equal chance with those who, thru practice, have become experts in judging and exhibiting grain. Since the average farmer has not trained himself in the art and science of exhibiting, he lacks the rare judgment and keen perception so essential to success in this special line. His opportunity of gaining this information is thru experience in local shows and by studying the methods and specimens there.

Obviously the better the local exhibits are, the greater is their value for study purposes. However, it does not seem fair to allow a sample to be shown repeatedly at a large show because of the tendency of exhibitors to hand-pick small grain for this purpose. Grain is either an annual or biennial product and if it will not reproduce its kind it is not worthy of more than one prize in any one large show. Experts and professional exhibitors should be excluded from the state shows entirely or handicapped so as to give the ordinary farmer a fair chance.

The handicap may be one of two things. Either prize winning exhibits may be denatured by the use of chemicals or special physical marks or they may become the property of the association holding the show and later destroyed or rendered useless for exhibit purposes.

The latter method is not satisfactory because exhibitors are opposed to any rule which would deprive them of their grain and many would refuse to compete. In some instances the grain was sold to other persons and later shown elsewhere. An exhibitor would rather see his sample destroyed than permit a competitor to get possession of it and use it for exhibit purposes. The value of a hand picked sample of small grain for seed purposes is probably little above that of ordinary recleaned grain from the same source. In the case of corn, most of the show samples are planted the following spring and only a few are shown year after year.

Destroying good seed corn is neither the purpose nor the spirit of any show.

Destroying exhibit grain or keeping it is not a fair and just handicap. It deprives the farmer of his best seed corn, grain and seed, and there is no excuse for such a practice if the interests of the farmer are to be respected. This rule does not apply so much to the professional exhibitor, since he is content with winning several smaller prizes each year for several years and purposely avoids those shows where the grain is kept by the management of the show, unless he has duplicate or large samples in reserve.

Exhibit grain is of two classes, corn in the ear and shelled corn, small grains and seeds. Corn in the ear may be denatured by the use of chemicals or by special physical marks. Chemicals can be used in treating the seeds, small grains and shelled corn so as to make possible their identification as former exhibit samples at any future show. Corn in the ear may be marked by removing 2 or 3 kernels from 4 to 6 adjacent rows of each ear. The kernels should be destroyed to prevent the owner from gluing them in their respective places. Kernels can rarely be glued in so as to escape detection if the ears are handled. In case it becomes necessary to use more than one mark to distinguish between two large shows as the state fair and state corn and grain shows, a variation in the number of adjacent rows or in the position of the mark with regard to the butt or tip portions of the ear, would afford several distinct marks. If each large show would adopt a distinct mark it would be an easy matter to identify samples that have been previously shown.

This method of marking corn, which has been used in Kansas and possibly elsewhere, would prevent a sample from winning more than one prize in a given show. It would be easily applicable to both the Ohio State Fair and to the State Corn and Grain Show. Samples could be admitted or excluded from one or both by rules, and samples identified by their respective marks.

Josef Schneider, director of the Agricultural Academy and Experiment Station at St. Michele ad Etsch, in a paper, "A Guide to the Judging of Maize and Its Mill Products with Reference to Their Fitness as Articlose of Food," published in 1909, described the methods of denaturing spoiled corn and corn meal in the pellagra districts of Austria. After several years experience the following methods were adopted. For corn in the grain at least 225 cc of a 1 percent solution of methyl violet per 100 kilos or 220 pounds of grain were recommended, and for corn meal 4 grams of absolute methyl violet per 100 kilos, or if preferred by the owner, ¼ percent of a 25 percent solution of iron oxide could be used. When corn is sprinkled with methyl violet the coloring matter clinging to the kernel cannot be washed off easily and completely with water or in any other way. Corn meal made from denatured corn furnishes a polenta of bluish-gray or dirty-gray color.

The cost of denaturing with iron oxide is disproportionately higher. By the addition of this quantity of iron oxide coloring matter the appearance of the meal is not noticeably altered, the coloring is latent and makes itself evident only when the corn meal is dampened with water; the porridge is colored reddish violet and has a curdled look. If a meal denatured by methyl violet is mixed with sound meal even in small quantities the presence of the matter makes itself evident in the porridge by a striking dirty, bluish-gray color. The methyl violet should be applied with a sprayer, or by a small birch or brush broom.

These methods of denaturing grain could be applied to shelled corn, small grains and seeds in our larger grain shows. Not only could the materials mentioned be used, but others adapted to this purpose could be substituted. Methyl violet was employed because it was cheap, and non-poisonous. By this method the grain is not destroyed or injured, its color is only slightly affected, its feeding value and vitality are unchanged, the coloring matter cannot be washed off easily and completely, the grain would be injured for exhibit purposes if washing was attempted, and the grain could still be used for seed purposes and for local shows. Upon request of the exhibitor a certificate stating the date and material used in denaturing the grain could be issued by the secretary of the show. This certificate to be presented to the secretary of any local show in case the exhibit was discolored by the substance used in denaturing.

A more satisfactory substance for denaturing exhibit grain might be found among numerous indicators used in chemical laboratories. Many of these substances are poisonous and must be used with caution. Phenolpthalein, a poisonous chemical substance which is colorless in natural or acid solution and turns pink when in alkaline solution, could be used if there were no danger of an excessive amount being applied to the grain and later eaten by some animal.

Another group of chemical substances used exclusively in the manufacture of inks might be used in denaturing exhibit grain. The principle suggested consists of treating the suspected grain with a non-poisonous substance, which when treated with another specific substance will react chemically and form a charactistic color. The colorless substance should be applied to the grain. To test a suspected sample of grain, a small amount of the grain should be treated with the appropriate material. If the sample had not been treated or denatured no reaction would occur, a grain which had been denatured by spraying with tannic acid could be dedetected by placing a few grams of the grain in a solution of ferric chloride. A black substance would be formed which would indicate that the grain had been shown previously.

If a sample of grain "in the rough" just as it came from the machine was required with each exhibit the tendency to hand pick, clip, rub and bleach would be obviated by disclosing the facts relative to the treatment the sample had received in preparation for exhibit purposes. Old grain could not be rubbed to give it a false appearance of freshness and luster, because the tips of the kernels of oats, barley, and of wheat would betray the age of the sample. The right to use a fanning mill in preparing an exhibit sample is not to be questioned as long as the separations made include only those accomplished by screens, air blasts, and specific gravity devices.

There is need for reform in the methods and practices of exhibitors at many of our grain shows. Chief among the objections or criticisms of present shows is the monopoly of premiums by a few individuals who are permitted to show a given sample several times. Hand-picking, clipping, rubbing, and bleaching grain should be regarded as false practices. Experiments have been begun to test out the effectiveness of the methods of denaturing as outlined, and it is hoped that a satisfactory method can be found, which will be practical and easily applicable to at least our larger shows.

ACTIVITIES OF THE U. S. BUREAU OF CHEMISTRY

How Things Needed by the Nation Are Tested

CARL L. ALSBERG, Chief

THE division of chemistry was organized in 1862, shortly after the passage of the organic act of May 15 of that year by which the department of agriculture was established. Dr. C. M. Wetherell was its first chief chemist. The scope and importance of the division's work gradually increased and on July 1, 1901, it became, by act of Congress and executive order, the bureau of chemistry. The working force was entirely reorganized and the subjects of investigation redistributed.

Since then the growth has been rapid, particularly after the passage on June 30, 1906, of the Food and Drugs Act, popularly known as the "Pure Food Law," the enforcement of which was put under the direction of the bureau. As at present organized the bureau has a working force of 560, exclusive of 64 collaborating officials.

The work of the bureau of chemistry falls under two main divisions, regulatory and research. Regulatory work is concerned chiefly with the Food and Drugs Act and its two amendments. Research work includes many and varied kinds of investigations in analytical, agricultural, and biological chemistry. In addition to these two types of work the bureau cooperates in various ways with other departments of the Government. For example, it makes analyses for the Post Office Department of foods and drugs transmitted thru the mails with a view of preventing the use of the mails for fraudulent purposes. It also prepares specifications for purchasing certain kinds of supplies under contract by the United States Government and it conducts tests to see that the supplies furnished and under contract by the United States Government conform to the specifications.

As stated in the law itself, the Food and Drugs Act was passed for the purpose of "preventing the manufacture, sale, or transportation of adulterated, misbranded or poisonous or deleterious foods, drugs, medicines, and liquors, and for regulating traffic therein." It applies only to products shipped in interstate commerce, or that are manufactured or sold in the District of Columbia, or in a territory of the United States, or that are imported into or exported from the United States. It does not apply to foods and drugs manufactured and sold wholly within the borders of a state. Products so manufactured and sold are subject to state and municipal legislation.

By two subsequent acts of Congress the scope of the bureau's work under this law has been considerably broadened. The Sherley amendment, enacted August 23, 1912, provides in the case of drugs that the package and label shall be free from any statement, design, or device regarding the curative or therapeutic effects of the article, or of any of the ingredients or substances contained therein, which is false and fraudulent. The Net Weight amendment, enacted March 3, 1913, requires that food in package form, shipped in interstate commerce, or otherwise brought within the jurisdiction of the act, shall be plainly and conspicuously marked to show the quantity of the contents.

For the purpose of securing an efficient inspection of foods and drugs moving in interstate commerce the

country has been divided into three food and drug inspection districts—eastern, central and western, with headquarters respectively at Washington, Chicago, and San Francisco. Each district chief represents the bureau within his territory in its relations with the public in the enforcement of the law. In addition to the central laboratory located at district headquarters, branch laboratories have been established in the following cities: eastern district—New York, Boston, Philadelphia, Buffalo, Savannah, and San Juan, P. R.; central district — Cincinnati, Minneapolis, St. Paul, and New Orleans ;western district—Denver, Seattle, and Honolulu. A force of 46 inspectors, each working under the direction of one of the district chiefs, is kept constantly employed collecting samples, inspecting factories, and at tending to other work connected with the enforcement of the law.

Some idea of the extent of the regulatory work of the bureau may be obtained from the following figures for the fiscal year ended June 30, 1916; 4483 official samples of foods and drugs shipped in interstate commerce, and 4000 unofficial samples, were collected and examined; 14568 import shipments were examined at the import laboratories; 1364 cases were transmitted thru the Solicitor's office to the Department of Justice, in 787 of which criminal proceedings and in 587 of which seizure proceedings were recommended; and 1036 criminal and civil cases were terminated in the courts.

The research work of the bureau may be divided into two classes; first, investigations with reference to food adulteration, and second, investigations of new methods of production and new methods of utilizing products of the soil and sea. So far as possible the work under these two heads is kept separate, but the two types of investigation frequently merge into each other. Greater progress has perhaps thus far been made in investigations concerned with law enforcement, altho the second class of investigations by no means has been neglected. With the more general compliance of manufactures with provisions of the law it is expected that research work in agricultural chemistry soon will receive considerably more attention than has been possible in the past.

In the realm of plant chemistry a phytochemical laboratory has recently been established with the object of making a complete examination of plants and plant drugs. The value of such work will be apparent when one considers the large number of native plants, many of which possess valuable medicinal properties which have never yet been chemically examined.

To develop work upon the decomposition and fermentation of food products a laboratory of microbiology has been established. A comparative study has been made by this laboratory of the different groups of species of molds and bacteria, their natural or usual habitats, and the changes induced by them in foodstuffs. A new method for the bacteriological examination of shellfish has been devised and considerable work has been done with a view to preventing the shipment in interstate commerce of oysters from waters polluted by sewage.

In the work of developing new methods of utilization of waste by-products and new methods of preventing waste in food there has been some interesting and practical results. It has been found, for example, that meal prepared from the waste of the sardine industry is highly nutritious and has

considerable value, both as a stock and poultry food. It is estimated that from 35,000 to 40,000 tons of dried fish meal could be obtained from the utilization of the waste in the Pacific coast salmon canneries alone. When it is considered that tuna fish, herring, menhaden, and dogfish may also be used as a source from which to manufacture fish meal, one begins to appreciate the commercial and economic possibilities of this product. New uses for fish and fish products are now being made the subject of further investigation.

Considerable attention has been given to the poultry and egg industry. Information obtained thru investigating the principles of handling eggs and dressed poultry is disseminated by the food research laboratory thru personal contact, demonstrations, and publications. This work has resulted in marked improvement in the handling of eggs by poultry and egg packing

Inspecting Dressed Poultry

Peanut meal, the principal by-product of peanut oil manufacture, is another valuable feed which can be used for all classes of livestock without producing any detrimental effect.

As a result of experiments conducted during the winter of 1915 and 1916, and the spring of 1916, it was found that inoculation of ground potatoes with from 2 to 5 percent of corn meal insures an acid fermentation which converts the potatoes into a silage which makes an excellent stock feed. The siloing of potatoes, which may be conducted on either a large or a small scale, renders it possible for the farmer to make profitable use of part of his surplus supply.

houses and in improved refrigerated transportation service. As a result of a study of the breakage of eggs in transit definite recommendations have been made to the industry which have resulted in largely decreased damage in transit. With reasonable care such damage can now be reduced to less than 2 percent.

This laboratory has devised several pieces of apparatus of use to the egg industry, ranging from a simple portable electrical candling device to cost not in excess of $1.50, which should

prove of material assistance to traveling egg collectors in candling eggs, to an ice-chilled precooling box capable of chilling 15,000 pounds of eggs and poultry a week, which can be installed for about $800.

During the past two and a half years the dye industry has received a remarkable stimulus in this country. The color investigation work of the bureau recently was concentrated in the color investigation laboratory, which is engaged in research in the manufacture of dyes and substances from which they can be made, both natural substances of agricultural origin and also coal-tar and intermediate products. This laboratory studies the dyes that are used in the textile, leather, paper, and other industries, for the purpose of determining their purity and devising improved methods of manufacture. This work is being undertaken in cooperation with the industry for the purpose of contributing knowledge of value to American manufactures of dyes and assisting in the development of a dye industry in the United States capable of supplying the needs of the country.

There are many forms of work, both regulatory and research, undertaken by the bureau quite as interesting and important as those so far considered. Among the laboratories engaged in such work should be mentioned the following: carbohydrate, food investigation, leather and paper, oil, fat, and wax, pharmacological, plant and chemical and protein investigation. It has not been possible within the limits of this article to touch upon more than a few phases of the work, or to attempt to give other than a general idea of the activities of the bureau of chemistry which, in common with the other bureaus of the Department of Agriculture, appreciate its many opportunities to help make the Department of yet greater assistance to the farmer and to the whole nation.

Alfalfa Showing Results Obtained From Liming
Courtesy Agricultural Lime and Limestone Association.

IS LIMING BENEFICIAL TO SOIL FERTILITY?

Factors That Must Be Considered in Applying It to the Land

HAZELTON A. PURVIS, '17

THAT acidity in the soil is a detriment to its fertility and should be corrected by liming is a matter of common experience. The benefits derived from the use of lime as a means of correcting soil acidity were first brought to the attention of the farmers of this country by Edmund Ruffin, a Virginia farmer, who published a series of articles in the American Farmer in the early part of the last century, which were later collected together and published in a book under the title of "Calcareous Manures." Later this practice spread thruout the eastern states, in some of which it has for many years been regarded as one of the essentials for successful crop production. Gradually this practice has moved westward, as have all farm practices which have arisen because of the gradual decline in fertility in soils under continued cultivation until most every farmer in the Middle West is using lime to some extent.

Experience has shown that whenever any material becomes popular as a means of increasing crop yields there is always danger that it will be used indiscriminately on all soils. This has happened in the eastern part of this country, where enthusiasm for lime, created by remarkable results secured in some cases, has led to the neglect of the humus and plantfood content of the soil to the detriment of crop yields. May it not be possible that at least in a few cases soil acidity is not detrimental to the fertility of a soil?

Soil acidity is considered to be that condition or reaction of a soil which contains an excess of acid substances over the bases present, or in other words, it is the condition or reaction of the soil which contains insufficient bases to unite with and neutralize the acids present or produced.

It also has been proven that the potato scab, a fungus disease of the potato that flourishes in an alkaline medium with the result that when lime is applied the crop yield is reduced nearly one-half by the attacks of the disease. When acid fertilizers are applied to the soil, or when green manure is plowed under in preparing the field for potatoes the disease is greatly if not entirely checked. Experiments also tend to show that the wart-disease of the potato, which is able to live in the soil from 5 to 6 years, is almost checked by an acid soil. Dry-rot of potatoes may also be checked to a great extent in this way.

"Since I commenced close soil and crop investigations, I had opportunity to work only upon alkaline types of soil, somewhat deficient in lime but rather abundantly supplied with potash and soda. These, when not in excess, are favorable to crop production, particularly cereals. They also seem favorable to the excess development of many parasites or semi-parasitic fungi, as for example potato scab, and the various types of Fusaria which prey upon potatoes and roots of flax and of various cereals. In my small experimental way I made it clear to myself that some of these parasites failed to develop well in the presence of acid soils, as for example, potato scab. They do develop in such soil, however, as soon as sufficient lime or other materials are added to bring neutrality or soil alkalinity," says Prof. H. L. Bolley of the North Dakota Agricultural Experiment Sta-

tion, who recently has brought forth a hypothesis in regard to why crops decrease in yield. His hypothesis is that crops decrease in yield if grown in continuous rotation due to the development of parasites or semi-parasites which prey upon the crop and check its development.

It is usually indicated with great clearness by the growth of certain weeds, such as sheep or sour sorrel, horse-tail rush, corn spurry and wood horse-tail. The failure of alfalfa or red clover leads one to suspect acidity in the soil, also the replacing of red clover in a field by red top is another indication that the soil is acid.

Experiments have shown that radishes, flax, castor beans, raspberries, blackberries, red top, and lupines are injured by an application of lime, while corn, rye, most fruit trees, alsike clover, strawberries, hairy vetch, cowpeas and soybeans are only slightly affected if at all by the acidity of the soil. More than half of the farm land in humid regions of the United States is unquestionably sour. At least half of the agriculture of Indiana and Ohio has been more or less satisfactorily developed under acid soil conditions. In many localities, such as southern Illinois, southern New York, and the uplands of Tennessee, profitable yields of these and other crops on acid soils can be raised.

There seems to be no doubt but that most of the legumes are able to fix atmospheric nitrogen when growing on an acid soil. A Swiss investigator, Charlotte Ternetz, has isolated from acid soils several fungi in which this same faculty not only occurs, but is developed to a high degree of efficiency. Considering these facts is it not possible that a system of economical agriculture in the humid region of the United States might be developed on acid soils without the use of lime?

The fungus disease of the tobacco known as root-rot, which is prevalent in tobacco plantations that have received excessive applications of lime and other alkaline fertilizers, is readily controlled by making the soil acid with acid fertilizers.

In reference to liming, Fred of Wisconsin, reports that half lime produced almost as great a yield of dry matter as the full amount required to neutralize the acidity of the soil, or in other words, half enough lime is sufficient for the production of a good crop. Frear of Pennsylvania says that the growth of red clover on acid soil is benefited when the acidity is only partially neutralized. Hopkins of Illinois also reports that moderate quantities of lime applied to acid soils favor the growth of legumes. Some experiments also tend to indicate that the acidity of a soil can be reduced by increasing the organic matter of the soil, and that certain fertilizers have a tendency to decrease the acidity of a soil.

Lime, when used in moderation and when applied at a reasonable cost, can without doubt be used to an advantage on acid soils. Excessive use of it, however, drains the fertility of the soil and is expensive. Soil acidity is not always a detriment to soil fertility, and the time may come when by the use of acid-tolerant plants we may be able to grow satisfactory crops without the use of lime to such a large extent.

KEEPING FARM ACCOUNTS AND RECORDS

Factors That Must Be Considered in the Agricultural Business

THOMAS D. PHILLIPS, Department of Rural Economics, Ohio State University

THERE is a growing interest in the subject of farm accounts and records. More people are becoming interested in the business side of farming, and this increasing interest brings forth an increasing demand for information about accounts and records.

In times past when the farm was operated on a self-sufficing basis there was little demand for farm accounts or records, because the average man retained in his memory all that he thot it was essential to know about the farm business. Such practice for the past one hundred years has caused a large amount of Ohio farm history to be lost with the passing of the generations, and comparatively little information about the farm business of the past generations has been preserved in tangible form for the present or succeeding generations. Some exceptional incidents have been related as parts of family history, but they are not available in many cases for the present operator of the land. The result is that many men do not know what has happened on the land they cultivate since it has been cleared. Records of time of clearing and bringing under cultivation of the various parts of the farm, the crop production, its use, field fertilization and drainage are not now available.

What the value of such lost history would be to the farming business can not well be estimated. Our present day agriculture might have been changed and the education of the children raised on the farm might have been different. The attitude of the farmers to their business might have been different. However we do not have this history and we must work with what we have.

We now have an opportunity to help the people who are to follow our generation on the farms of our state by helping them collect information about their own business, for their own use and benefit, and encouraging them to preserve it for the use of the future generations on the same land by letting them have this history of the present treatment of the land they will cultivate sometime in the future.

One of the simplest records that can be kept is the farm map. On such a map which should be carefully prepared, can be shown the well defined field areas, the data relative to crop yields, fertilization and drainage. If such a map is prepared for each year for a period of 25 or 50 years, a large amount of farm history could be gathered and the value would be far in excess of the annual cost.

Other records should be kept in as permanent form as possible. Bound volumes are desirable for them because of the permanency they afford. Such books can be readily adapted to all kinds of farm records and the risk of losing them is at a minimum. Records on loose leaves or in memorandum books should frequently be transferred to a permanent volume.

The lack of information on the business side of farming stimulates an interest in farm accounts and records. Some persons get the spirit of the work sufficiently strong to put effort into it and accomplish something. Others realize the need of such work but are quite sure that some one else should do it. Many farmers have never given it

much thought and are undecided as to its value.

A farmer may get much good from the work someone else in his community does along this line but the benefits are much greater when the information comes from his own business, from records kept by himself with his property. Personal application of the principles of business farming is the best way to find out what the farm is doing under its present management. Not many men apply principles in the same way and their ability to develop their farm toward maximum efficiency depends on their efforts to determine the limiting factors of their business.

In operating a farm as a business it is expected that the farmer will preserve his original investment and make a rational increase in his resources during his lifetime. This means that a man's success in business will be measured in dollars and cents. In any business where gains are made over a period of time, the degree of success is rated in terms of money and the business continues. If in any business the investment produces just enough income to maintain it, it will eventually become stagnant. If losses are annually sustained a change is sure to come, for it can not continue indefinitely and pay operating costs out of capital. This latter condition may prevail on a farm for sometime and still let the farmer have a living and a place to stay. Records would show where the weak points of such a business exist and they could then be corrected.

A careful survey of one's business will sometimes show an entirely different condition than was supposed to exist. The operation of a farm made up of many enterprises calls for a system of exact accounting to show what such enterprises have done or are now doing for the business. Productive farm enterprises must always pay the cost of the unproductive enterprises. If past records show that such a combination as now exists to have been unprofitable for a period of time, a change in the business should be made.

OF
OHIO STATE UNIVERSITY.
A MEDIUM FOR EXCHANGE OF IDEAS BETWEEN COLLEGE AND FARM

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EDITORIAL

FARM WORK REQUIRED.

Practical farming experience is to be required of students graduating from the College of Agriculture as the result of a recent ruling of the agricultural faculty. This plan will not go into effect immediately but will begin with the class of 1919, who will be required to work at least one summer on the farm before receiving their diplomas. This requirement will be increased one summer each year until 1923 a full year's work will be necessary for graduation.

The need of a plan of this kind has long been felt at Ohio State and will go a long way towards overcoming much of the criticism which justly or unjustly has been made of the methods of agricultural teaching now in vogue.

The College of Agriculture cannot be expected to supply information along practical lines which the ordinary student is already supposed to possess. Neither is it fair to give a degree to a man who was born and brought up in the city and who probably has no knowledge of the practical problems which continually arise under actual farming conditions.

The idea which has been worked out by the faculty is an excellent one. It will be applied so gradually that it can not work a hardship on anyone. In fact about the only criticism that could be made concerning it is that it is too lenient.

It is to be earnestly hoped that the plan will help to eliminate that type of student, found in every agricultural

college, who has no real interest in agriculture but is merely taking the course because he thinks it is easy or has failed in some other college and has taken up agriculture as a last resort. Agriculture is no place for the man who is not in sympathy with farming and rural life or the man who dreams of going out and rolling in wealth without any effort expended. Getting out on the farm and receiving a few of the hard knocks which are sure to come his way surely will eliminate the type of student who either comes with the idea of taking agriculture because it is easy or who expects to find a bonanza in farming after he is thru with his college course.

AGRICULTURAL EDUCATION.

How can Germany support her large population? In 1912 an increase of from 85 to 92 percent in the crop yield was realized over that of 1887, an extra profit of $1,000,000,000 to the German Empire. This has been the result of extensive agricultural education work carried on under the German system.

This system has grown up as a result of the preception that scientific farming is the only way of getting the utmost out of the soil. Germany started her system of agricultural education in the early part of the nineteenth century and it has grown with her increasing population until now the elements of agriculture are within the reach of all, especially the small farmers who chiefly are the ones that need the training. The farmer boys while in military training have an opportunity to study agriculture. Germany to meet the demands of the people have provided schools for all classes.

The elementary, technical and the winter schools of agriculture more than all the others are increasing the intelligence and skill of small farmers. It is by educating the small farmers and encouraging them to stay on the farm that the nation is so largely self-supporting and strong under adverse conditions. The winter schools are in charge of itinerant teachers. They have charge of these schools during the winter and during the summer they go about from farm to farm and advise farmers on practical problems and teach them more efficient methods.

SIXTH ANNUAL HORSE SHOW.

The date for the sixth annual Ohio State Horse Show has been set for Saturday, May 5. Members of the Saddle and Sirloin Club have been working for the past several months planning the details of this show, getting in touch with the different competitors and will no doubt make this show as good, if not better, than any previous show held by the club.

Last year with eighteen events, 130 entries and twenty prizes in cups and trophies amounting to more than $200, the show drew a crowd of more than 3000 who sat for 5 hours applauding the riders and drivers of the 60 pleasure horses as they showed on the turf. Each event was of high quality and the competition was so keen that at no time could the judge pick the winners by hastily glancing over the exhibition.

Students in the College of Agriculture, What are you doing to aid in making this show, the greatest agricultural educational feature of the year, a success? The members of the Saddle and Sirloin Club are working hard and they deserve your support.

If you saw the show last year and think of some suggestions that you think would improve the show, they will be appreciated by the different

committees in charge. If you know of men who have light horses that you think might show let the entries committee know about them. Further you may help boost the show by writing to your own home papers telling them about the show and of its educational nature. They are glad to publish news coming from the University, and by helping a worthy cause you will not only be helping others but yourself as well.

GOOD SEED NECESSARY.

At this time of the year the value of good seed is felt by every farmer. It is an essential to successful farming. Those farmers who selected their seed last fall are now reaping the benefits of their thoughtful work. Long tedious hours spent in the corn fields are being rewarded by the satisfaction of having good clean seed which will not only germinate but that will also produce strong healthy plants.

It is certainly a source of satisfaction to the farmer to know that he has enough seed with high germinating power to plant his entire crop. He knows that if weather conditions are favorable, his chance for raising a large crop are good. With a partial stand of plants on the land the farmer can never hope to produce the highest yields nor can he hope to be as optimistic about farming as the one who can look out over his fields and know that every foot of ground is doing its best.

All who have not carefully selected their supply of seed for this year's crop and thoughtfully stored it during the winter should profit by the lesson that the present high prices of seeds are teaching. Good seeds can be raised cheaper and easier than they can be bought.

COURSE IN RURAL WRITING.

A course in agricultural journalism is now a reality here at Ohio State. Whether the course will meet expectations and have an influence in raising the standard of writing found in the farm papers thruout the country and aid in solving rural problems will depend in large measure upon the persons in charge and upon the individual students taking the work.

The value of a thoro preparation in rural journalistic work cannot be questioned. There is need for men in this work who know how to write, what to write and what to print. Ability to do these things comes only from education and practice. For a person to be of greatest service in the field of agricultural journalism he must know the needs of the community and then help solve the problems that he has pointed out.

It is imperative that he must have a certain amount of training and practice along broad general lines. We believe that no better addition to this training can be made that will help one in perceiving the problems in the country than a thoro course in the science of agricultural writing.

Home Economics Department

MEALS FOR THE CLUB BOYS AND CLUB GIRLS

JULIA SMITH, '17

DURING Farmers' Week the extension department of the Ohio State University had charge of entertaining 150 club boys and 50 club girls who were sent by the state to the University as a reward for having done good work in their county clubs thruout the state. One problem of the entertainment which confronted the extension department was where these young people should be fed. There were several small lunch rooms near the campus where they could be taken in squads but none of these would accommodate 200 at a time.

The solution of the problem seemed to be the establishment on the campus of a lunch room to be used during Farmers' Week for the club boys and girls. The home economics department offered the use of the home makers' laboratory which is on the first floor of the Home Economics Building as a lunch room if any university organization could be found which would undertake the responsibility of feeding the children.

Phi Upsilon Omicron is a home economics organization of the senior girls and they were asked to aid in the solution of the problem. They accepted the responsibility and planned the menus under the supervision of Edna N. White, head of the department of home economics. Because of their training in the preparation and serving of food, they were prepared to plan balanced, simple and inexpensive meals which were suitable to the people they expected to serve.

All the planning of meals, ordering of materials and allotment of responsibility among the ten girls was done before the Monday on which they began their work. The boys and girls had their breakfast at the hotels at which they were staying. The Phi Upsilon Omicron girls served dinner to them at 11 o'clock and supper at 5 o'clock.

Before the work of each day began, every girl knew what her responsibilities for the day were to be, what foods were to be prepared by her for both meals and what part she was to take in serving. Thus all worked independently and at the same time cooperatively. The food was served to the boys and girls as they passed along with their plates in a dairy lunch fashion. They seemed to enjoy the style of service which was new to most of them. They did not mind taking the few moments extra which was necessary to get their food and return their plates for dessert.

Perhaps they ate too rapidly but it was noticeable to onlookers that with this efficient method of service the entire 200 had always finished the meal from 20 to 30 minutes after entering the lunch room.

Since the whole experiment was a new one careful records were kept of how many persons could be served from each recipe and what the actual expense of each dish was. Some valuable results were obtained from these methods which it is hoped will be of use to others who undertake similar problems.

The Phi Upsilon Omicron girls feel that as a result of this experiment they have shown their home economics train-

ing to be of practical value. It is certain if ten girls with the help of three maids can do all of the work connected with the serving of two meals a day to 200 people, their training was not impractical or valueless. Furthermore, those who watched the experiment felt that the boys and girls were served better food than they would have obtained had they patronized the small lunch rooms and had been allowed to choose their own food.

Financially the experiment was a success. Thirty-five cents per person was allowed for each meal and all expenses were kept within this amount. The girls feel that the satisfaction of having shown that they could perform the experiment and perform it well has been invaluable to them.

MENU FOR THE WEEK.

Monday.

Dinner: Pot roast, gravy, boiled potatoes, string beans, bread and butter, chocolate pudding, cream and milk.

Supper: Creamed salmon on toast, scalloped corn, rolls, butter, fig tapioca, cookies and chocolate.

Tuesday.

Dinner: Meat loaf, gravy, creamed potatoes, breaded tomatoes, bread and butter, cottage pudding, sauce and milk or chocolate.

Supper: Baked beans, cabbage slaw, bread and butter, gingerbread, apple sauce, and milk or chocolate.

Wednesday.

Dinner: Brown stew, steamed rice, turnips, bread and butter, baked apples, cookies and chocolate.

Supper: Cheese fondue, creamed cabbage, rolls, butter, fruit mixture, graham wafers and milk.

Thursday.

Dinner: Hamburger steak, gravy, sweet potatoes, spinach, pickles, corn bread, butter, rice fruit pudding and milk or chocolate.

Supper: Potato soup, crackers, macaroni and cheese, bread and butter, sliced pineapple and milk or chocolate.

Friday.

Dinner: Escalloped oysters, boiled potatoes with parsley, creamed lima beans, ice cream, cake and chocolate.

Supper: Chipped beef on toast, carrots and peas, cottage cheese, bread and butter, fruit mixture, spice cookies and milk.

TESTED RECIPES.

Brown Bread.

1 cup Orleans molasses.
1 pint sweet milk.
1 pint white flour.
1½ pints graham flour.
¾ cup raisins (if desired).
1 teaspoon salt.

1½ teaspoons soda dissolved in a little hot water. Grease tin cans and fill not much over one-half full. Bake 1½ hours in a very slow oven.

Colonial Baking Powder Bread.

3 cups flour (sifted).
3 teaspoons baking powder.
1 teaspoon salt.
2 tablespoons sugar.
½ cup nuts.
½ cup raisins.
1½ cups milk.

Mix all the dry ingredients together. Chop the raisins and put in the dry ingredients. Add the milk last. Bake slowly in two loaves.

Nut Bread.

1 egg.
1 cup sugar (scant).
1 cup sweet milk.
1 cup chopped nuts.
3½ cups flour.
4 teaspoons baking powder.

Put in four well greased baking powder cans. Let set for twenty minutes

before baking. Bake in slow oven for 45 minutes.

Brown Sugar Oatmeal Cookies.

1 egg.
⅔ cup brown sugar.
½ cup butter.
1 cup flour.
1 cup rolled oats.
1 teaspoon baking powder.

Cream together the butter and the sugar then add the egg. When well beaten together add the rolled oats. Lastly add the flour and baking powder sifted together. Two-thirds cup chopped English walnuts may be added with the rolled oats if desired. This recipe makes 25 or 30 cookies.

After completing a home economics demonstration in Montgomery County for 9 months ending January 1, Miss Maud Okey, instructor in home economics of the agricultural college extension service, has returned to the college to take up demonstration work in connection with extension schools. It was first contemplated that the work in Montgomery County should extend from April 1 to July 1. Repeated requests on the part of farm women in the county, however, led to the extension of the demonstration until January 1.

Miss Okey's program was taken up largely thru rural mothers' clubs in different townships. In most instances the women were already organized into groups of various sorts, but in a few cases, clubs were formed by Miss Okey. Instruction was offered thru demonstrations. lectures and discussions. The place and time of meetings were left almost entirely to the women, as well as the subject taken up. Cookery seemed to evince the greatest interest. Household decoration also proved to be a popular subject. Requests came for information concerning the selection of wallpaper, rugs, curtains and other articles. Discussions regarding the arrangement and equipment of kitchens aroused keen interest.

The farm women, however, did not confine their questions to cooking, household decoration and kitchen arrangement, but asked for instruction regarding all the varied work of the average farm woman. In case information was sought regarding poultry or some similar subject, a specialist or special literature was obtained from the agricultural college extension service.

Miss Okey's office was in connection with that of the county agricultural agent. On account of the rather large number of interurban lines extending into the county, she was able to meet most of the women at clubs with little difficulty. In many instances she was met at different points by club members and taken to the club meeting.

The work in Montgomery County proved to be so popular that an effort has been made to secure a home demonstration agent, or woman county agent, as she is sometimes called, to continue the work. To further this end, organized effort is being put forth on the part of several of the women's clubs of the county .

FEDERAL AID TO OHIO SCHOOLS THRU THE SMITH-HUGHES BILL

LESTER S. IVINS, State Normal College, Kent, Ohio

THE Smith-Hughes bill now before congress provides for federal aid to all the states for vocational education. This bill has passed both houses and will likely be a law by the time this is published. The subject of federal aid for vocational education has been before congress several times in the form of bills, but up to the present none have become laws. The first attempt was the Davis bill, followed in order- by the Davis-Dolliver, Page, Page-Wilson and second Page bill in 1912. This latter Page bill passed the senate but failed in the house. It contained much that is now included in the Smith-Lever law and the Smith-Hughes bill. The advocates of agricultural extension by agricultural colleges succeeded in getting the Smith-Lever law thru congress by making this division. In other words, the original Page bill attempted to take care of too many interests in one bill. It is wise to have made the division in as much as the Smith-Hughes bill is likely to become a law and thus care for the public schools.

Need of Vocational Training.

Need of vocational training is suggested by the census of 1910. According to this census there were 12,659,203 persons in the United States engaged in Agriculture. It is estimated that less than one percent of these persons have had adequate preparation for farming. The same census shows over 14,000,000 persons are engaged in manufacturing and mechanical pursuits and allied industries. It is also true that not more than one percent of these workers have had an adequate training for their work.

American people have just begun the work of providing for a practical education for these millions.

There are more workers being trained at public expense in the city of Munich, Germany alone, than in all the large cities of the United States with a population of 15,000,000. Germany provides sufficient vocational schools at public expense to train all her citizens who can profit by such training. The United States has often been criticised for failing to provide an opportunity for the vocational training of her people.

Provisions of the Bill.

The bill provides for National grants to be given to the states for stimulating vocational education in agriculture and in the trades and industries. They are to be given in two forms. First, for the training of teachers, supervisors and directors of agriculture and teachers of trade, home economics and industrial subjects. Secondly, for the paying of part of the salaries of teachers, supervisors and directors of agricultural subjects and the teachers of trade, home economics and industrial subjects.

Appropriations outlined in the bill are as follows: Beginning next June the sum of $500,000 is appropriated toward the salaries of teachers, supervisors and directors of agricultural subjects. This will be increased each year until 1925, when $3,000,000 will be appropriated annually for this purpose. Of this total sum Ohio will get $21,000 the first year, increasing to $127,000 in 1925 and annually thereafter.

Federal funds in this case are distributed to the states in proportion as

their rural population is to the rural population of the United States. Our State's rural population in 1910 was 2,101,879 or 4.5 percent of the total rural population of the United States.

Beginning at the same time the same amount is appropriated each year until 1925 for teachers of trade, home economics and industrial subjects. Funds for this work will be distributed to the states in proportion as their rural population is to the urban population of the United States. Of the total $3,000,000, Ohio will receive $31,250 the first year and a maximum of $187,500 in 1925 and annually thereafter. Ohio's urban population in 1910 was 2,665,143 or 6.25 per cent of that of the United States in cities.

Beginning at the same time, the amount is appropriated each year until 1920 and annually thereafter $1,000,000 shall be given for the training of teachers, supervisors and directors of agriculture and teachers of trade, home economics and industrial subjects. Of the total amount, Ohio will get $25,000 the first year and $51,000 in 1920 and annually thereafter. These funds will be distributed in proportion as the total population of Ohio is to the total population of the United States. In 1910 Ohio's population was 4,767,121 or 5.18 percent of that of the United States.

Kind of Schools Aided.

Schools that will be aided by the passage of this bill are those supported and controlled by the public. Instruction given by them must be less than college grade and designed to prepare boys and girls over 14 years of age for useful and profitable employment in agriculture, in the trades, industries and home economics. Included among the schools that will be aided are all day schools, part time schools and evening schools as well as state schools for the training of teachers.

In the administration of funds a federal board is created that will cooperate with the states in promoting vocational education. Each state shall create or designate a state board to cooperate with the National board and also to supervise the expenditure of the funds within the state to formulate standards of professional preparation for teachers, supervisors and directors who are paid out of federal funds.

The state must, thru its state board of vocational education, provide for the proper custody and disbursements of funds, formulate plans for the administration of funds, establish minimum requirements for equipment and expend at least an equal amount for the same purpose for each dollar paid from federal funds.

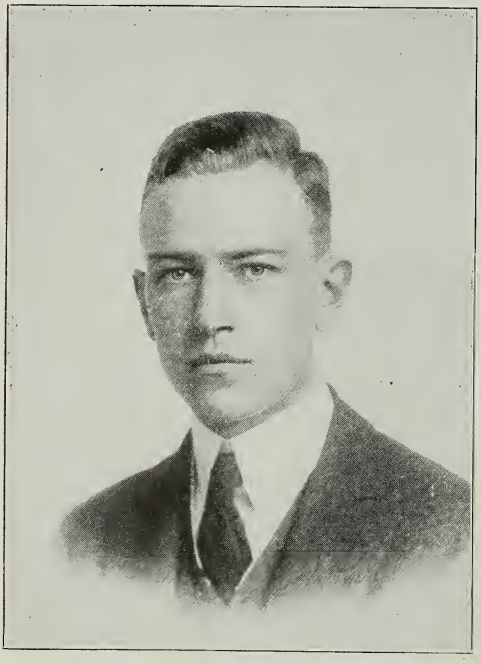
The future for vocational education in Ohio, if the above bill becomes a law, is very encouraging. This legislation will revolutionize our public school system and place vocational education in the first rank where it should be. It is quite fortunate for our state that considerable has already been done in our schools to provide vocational education. This experience will give us the inside track in our race with the other states to provide courses of study in the public schools that will give all our boys and girls an education that will enable them to make a living.

* * *

Professor Ivins, who has furnished the foregoing article has given the subject of vocational education several years of study, having taken special work in this subject at Columbia University where he received the degree of Master of Arts last June. He also received from Teacher's College their first diploma in "The Supervision of Agricultural Education" given in connection with the Master of Arts degree by Columbia. [Editor.]

Alumni
What The Busy Grads Are Doing

Clyde A. Waugh, '12, editorial manager of the soil improvement committee of the National Fertilizer Association, died of multiple neuritis at his home in Chicago on February 17. He was born on a farm near Bowling Green, Wood County, Ohio, in 1890.



After completing his elementary and high school education in the village schools he entered the Ohio State University from which he graduated in 1912 with the degree of Bachelor of Science in Agriculture.

Waugh was honored with many high offices as a student, and was the first editor of the Sun Dial, the humorous monthly publication put out by the students of the University. After graduation he became associate editor of the Ohio Farmer, which position he held for two years. While in this office, he became widely known among the farmers of Ohio and adjoining states who profited by his well written articles.

Waugh left this position to take up the one which he held at the time of his death. During his short and active career Mr. Waugh won a large circle of friends who will always cherish his memory. His keen foresight and sound judgment marked him a leader, had life only permitted its development. Though he is no longer with us, the inspiration of his active, earnest life will ever live.

Mr. Lewis H. Heller, '12, of Marietta, Ohio, has recently been appointed to the editorial staff of "The Field Illustrated." Mr. Heller is known as a man with a broad knowledge of livestock and agricultural conditions of the country, and possesses a record of practical experience and intelligent service, backed by 3½ years of service with the animal husbandry division of the United States Department of Agriculture. Prior to his recent appointment he was connected with the educational and publicity work of the National Wool Warehouse & Storage Company of Chicago.

True Houser, '06, is assistant botanist for the Ohio Agricultural Experiment Station and is located at Germantown.

R. E. Wallace, '06, is associate professor of soils at Purdue University, LaFayette, Indiana.

A. Kazezis, '16, writes as follows: "After graduating from the Ohio State University, I couldn't go back to Turkey on account of the war. I came to Toledo and was employed by the Toledo Dairy Company as the head of the

Milk Department for 6 months. Later on I gave up my position and now I am in business. I find The Agricultural Student very interesting and I read almost all of its contents.'' He expects to come back to Ohio State University next year to take work for a Master's degree.

Glenn D. Norton, '14, and Miss Nina B. Whitright of Lodi, Ohio, were married February 11, 1917. They are at home at Bonny Lea farm where Mr. Norton is engaged in general farming and dairying with purebred Jersey cattle a specialty. When in school, he was a member of the dairy cattle judging team. Since graduation he has instructed the 8-weeks winter course students in dairying for 2 years.

M. G. Vann, '16, who was formerly with the Salem Sanitary Milk Company at Salem, Ohio, is now with the A. G. Warren Ice Cream Company at Wilmington, North Corolina.

S, H. Clouse, ex-'18, is now employed by the Findlay Dairy Company as a butter maker.

B. W. Anspon, '10, is landscape gardener and floriculturist at the Maryland State College of Agriculture, College Park, Maryland.

Scott C. Hartman, '10, is farming near North Fairfield, Ohio.

G. E. Boltz, '10, is assistant chemist at the Ohio Agricultural Experiment Station, Wooster, Ohio.

Wilbur J. Hendrix, '10, is farming near Trotwood, Ohio.

J. M. Cadwallader, '10, is employed as an assistant in animal industry at the Louisiana Agricultural and Mechanical College, Baton Rouge, Louisiana.

Leslie J. Hoyt, '10, is farming near Norwalk, Ohio.

J. Gilbert George, '10, is employed by the State Board of Health and is located at Columbus, Ohio.

Richard Faxon, '10, is located at Columbus, Ohio. He is assistant horticulturist and nursery inspector for the Ohio State Board of Agriculture.

F. N. Fagan, '10, is assistant horticulturist at the Pennsylvania State College of Agriculture. State College, Pennsylvania.

W. R. Clum, '10, is farming near Thornville, Ohio.

W. H. Darst, '10, is assistant agronomist at the Pennsylvania State College, State College, Pennslyvania.

E. D. Holl, '06, is with the Geiger-Jones Securities Company at Bucyrus, Ohio.

Thomas B. Foster, '06, is farming at Butterworth farm, Foster, Ohio.

R. A. Young, '06, is with the bureau of plant industry at Washington D. C.

G. J. Wilder, '06, is located at Columbus, Ohio. He is manager of The Agricultural Lime and Limestone Association.

Fred E. Andress, '06, is farming at Birmingham, Ohio.

J. W. Hammond, '06, is an associate in animal husbandry at the Ohio Agricultural Experiment Station, Wooster, Ohio.

E. D. Waid, '06, is assistant director of extension service at the Massachusetts Agricultural College and Experiment Station located at Amherst

Francis L. Allen, '06, is farming at Van Wert, Ohio.

Burton L. West, '06, is traveling salesman for Cussins and Fearn Hardware Company with headquarters at Columbus, Ohio.

R. W. Harned, '06, is state entomologist and in charge of entomological work at the Mississippi Agricultural College located at Agricultural College.

R. C. Doneghue, '06, is soil investigator at the North Dakota Agricultural College and Experiment Station at Fargo.

Joseph A. Main, '06, is farming at Ostrander, Ohio.

William E. Evans, '06, is orchard and nursery inspector for the Ohio department of agriculture with headquarters at Columbus, Ohio.

George T. Snyder, '06, is farming at Monroeville, Ohio. He is making livestock raising a specialty.

J. E. McClintock, '06, is supervisor of publications and correspondence courses for the agricultural extension department, Ohio State University.

E. I. Lichti, '06, is a chemist at Sheridan, Oregon.

F. E. Haymaker, '06, is farming at Ravenna, Ohio.

Norman E. Shaw, '06, is nursery and orchard inspector for the State of Ohio and is located at Columbus.

Charles D. Hyatt, '06, is operating a farm at Nekoma, Kansas.

FARMERS' WEEK AT OHIO STATE UNIVERSITY

RURAL Ohio at work, engaged in the study of farming, livestock, country life improvement, horticulture, breed associations, seed improvement, home-economics work, and farmers' organizations was brought to its greatest height from January 31 to February 3, when 4046 lovers of the Buckeye state gathered at the College of Agriculture for the fifth annual Farmers' Week.

With 16 different farm associations holding their annual meetings during the week practically every one of the 14 buildings on the agricultural college campus were pressed into service for lectures, demonstrations, breeders' meetings and poultry sessions. Eighteen lectures a day, three or four every hour from 9 a. m. to 5 p. m., on practically every phase of interest to farmers were provided. The attendance swelled nearly 1000 each day until the 4000 mark was reached. Not any of the 5000 students at the Ohio State University were permitted to register and residents of Columbus were also asked to leave the farmers have full sway for the week.

Livestock Activities.

Livestock interests for the week were taken up in boys' judging contests, dairy meetings, animal demonstrations, breeders' meetings, poultry sessions and exhibitions. County winners, three boys from each of the 48 Ohio counties that conducted pig club work last year, were given free trips to Farmers' Week. These boys ranging from 10 to 19 years of age were instructed in the judging of horses, beef and dairy cattle and lard hogs in connection with a state-wide judging contest. Each day from noon to 2 p. m the boys filled the Judging Pavilion, each, eager to work with the college livestock. Trips were also provided thru the packing plants in Columbus. Governor Cox announced the winners at 11 a. m. on Friday. They are:

Beef Cattle—1st, Raymond Carson, Plain City, Union County; 2nd, Alvin Maurer, Fresno, Coshocton County! 3rd, Lowell Brown, Pioneer, Williams County.

Horses—1st, Leland Jones, Radnor, Delaware County; 2nd, Clarence Ritchie, Cuyahoga Falls, Summit County; 3rd, Dail Thompson, Van Wert, Van Wert County.

Hogs—1st, Philip Heim, Novelty, Geauga County; 2nd, Winifred Hart, Williamsfield, Ashtabula County; 3rd, Roy Bowlus, Trenton, Butler County.

Dairy Cattle—1st, Dale Stoltz, Gettysburg, Darke County; 2nd, Raymond Carson, Plain City, Union County; 3rd, Hayden Basinger, Bluffton, Putnam County; 4th, Carl Morton, Burton, Geauga County.

In the county contests Delaware County took first with 1024 points; Hamilton County second with 1011; Ashtabula County third with 1004; Geauga County fourth with 1003, and Union County fifth with 991 points. Raymond Carson with 371½ points made the highest individual score in the contest.

Practically every one of the county winners expressed their desire to continue their livestock work by entering the Ohio agricultural college within the next few years.

Meat Demonstration.

W. H. Tomhave's demonstration of hogs on foot on Wednesday and a meat demonstration using the carcasses on Thursday was witnessed by 350 people each day. He showed by weights that 50 percent of the meat value of a car-

cass is in 22 percent of its total bulk.

"If the housewife would purchase or use the rump, round, plate and shoulder from a good carcass," he declared, "she would have a more nutritious piece of meat than if she got the tenderloin or sirloin of an inferior animal and would get it cheaper."

Hold Livestock Show.

A miniature livestock show was the nature of the University animals presented on Monday with Prof. Charles S. Plumb officiating. The animals shown were bred by the department of animal husbandry. The importance of the purebred sire was emphasized in all the talks. In the beef-cattle class, Shorthorns, Angus, and Herefords were shown. Jersey, Ayrshire, Holstein-Friesian and Guernsey cattle appeared in the dairy division and Percheron, Belgian and Clydesdale horses in the equine classes. Prof. Donald J. Kays discussed the horses and Prof. Schuyler

M. Salisbury gave the records of the dairy animals. More than 400 men and boys attended the demonstration and visited the University barns after the exhibition.

Speaking of "Ohio's Herds and flocks," Prof. Plumb said, "There can be no great agriculture without a great livestock industry." He emphasized the importance of livestock in Ohio where its total value is $262,000,000 as compared with $230,000,000 worth of field crops.

Prof. J. L. Edmonds of the University of Illinois, addressed the annual meeting of the Ohio Percheron Breeders' Association on Wednesday at 2 p. m. He urged breeders to feed their colts carefully to maturity and with the present high prices of feed to use a combination of a cheap roughage with good alfalfa or clover for colts.

County Winners in Boys' and Girls' Club Work at Farmers' Week

Percheron Futurity Plans.

To provide a more substantial way to finance the Percheron futurity at the Ohio State Fair each year, the association voted to adopt the "nomination" of mares as necessary for exhibitors to show colts at the 1918 Ohio futurity. The fee is set at $2 per mare and if the colt from the nominated mare dies before the futurity is staged substitutions will probably be granted.

A number of breeders believed that such a plan will draw a line on the number of entries to the futurity by 1918 as breeders outside of Ohio will have colts from mares that will not have been nominated. In this event "the Eastern Percheron Futurity will in reality be an Ohio show." Only colts from nominated mares will be eligible for the 1918 futurity altho the mare or colt may change hands in the meantime. Because the contributions from the association to the futurity purse in the past has been largely private, the plan was deemed necessary.

The announcement made by Donald R. Acklin of Perrysburg, member of the state board of agriculture, that the purse for the futurity has been raised to $500 by the fair board brought applause from the breeders. No yearling classes are included in the Percheron show for Ohio next year. Five prizes will be offered in the other classes ranging from $40 to $10 in the 4-year-old class and $15 to $3 in the foal class.

Officers named for the association are: Otho H. Pollock, Delaware, president; C. F. Camp, Homerville, vice pres-

ident, and Donald J. Kays, Ohio State University, secretary and treasurer.

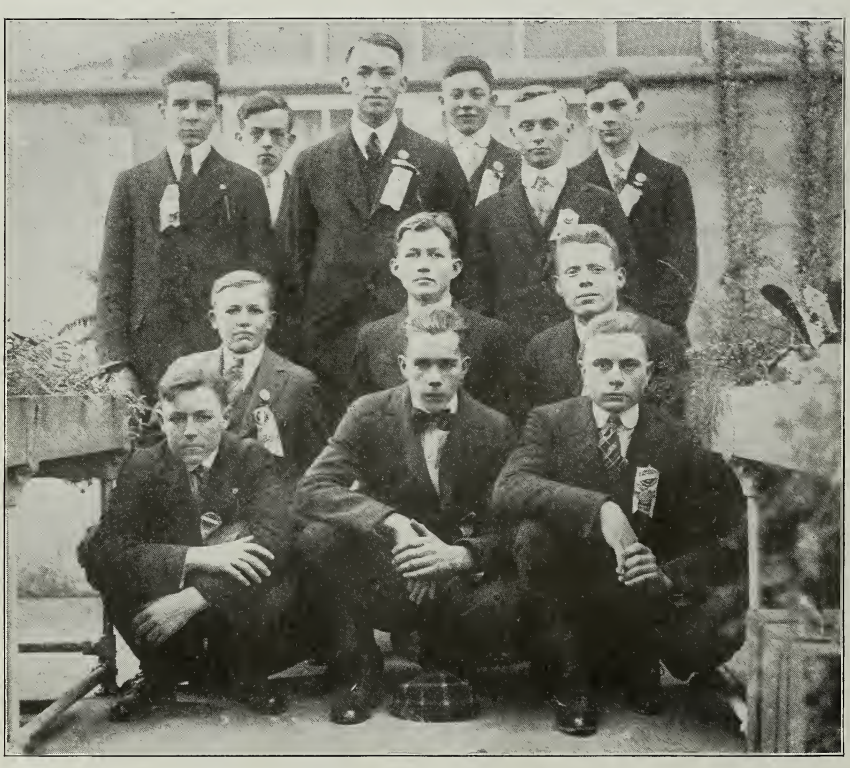
Dairy Meeting.

Governor Cox's message to 375 dairymen at their twenty-third annual banquet on Thursday evening, that he would sign the bill passed in the afternoon by the legislature for a $200,000 coliseum at the Ohio State fair grounds brought rounds of applause. The building will assure proper accommodations for the National Dairy Show to be held in Columbus next fall.

"I believe Ohio people and their dairy organizations show plenty of evidence to support a great show next fall" said J. W. Walker, president of the show at the banquet.

L. J. Taber, master of the Ohio state grange at the meetings of the Ohio Dairymen's Association urged producers to sell their products in a fair and business-like way only. He believed that the wishes of milk inspectors should be heeded and the price of all milk products be made according to the cost of production.

Taber gave the results of the Barnesville Milk Producers association, which in 8 months of the operation under the direction of their own tester returned $8000 to the community which before had not been secured thru the carelessness of the purchasing company. They now have their own tester who works in the office of the creamery company; his tests are accepted as final. One-half cent for every pound of butter fat handled by the tester is the toll required to pay for his services and expenses.



Winners in Stock Judging

Top Row (left to right)—Morton, Basinger, Stoltz. Second Row—Brown, Maurer, Carson. Third Row—Thompson, Ritchie, Jones. Bottom Row—Bowlus, Hart, Heim.

Members of the association are required under penalty to dispose of all their milk or cream offered for sale thru the organization.

E. H. Baker, editor of the Cleveland Plain Dealer stated that before a survey was made of the producers furnishing milk to Cleveland, no dairyman knew how much his milk cost to produce it. A cooperative survey with the department of dairying, Ohio State University, made it possible for every producer to know just what he must get for his milk and how to feed his cows to supply the demand.

Probably the most important action started at the dairy meeting was the beginning of a new organization to be known as the Ohio Milk Producers' association. The association will have the power to establish a board of producers and distributors to fix the price of milk thruout Ohio similar to the Elgin Board of Trade.

"The prices for milk should be determined once a month and based on the cost of production" advocated Professor Oscar Erf of the department of dairying who explained the move at the dairy sessions. Probably the method to be pursued will be to send out monthly statements of production cost and let the individual members draw their own conclusions about selling prices. Such an organization could be supported by 40,000 Ohio farmers.

Another move of the dairymen was the indorsement of a measure to be introduced to the general assembly providing for the licensing of all Ohio manufacturers of milk products and milk producers serving more than 25 customers. With this license must go the observance of regulations concerning the sanitation of barns and dairies, the infringement of which would cause the offender to be barred from selling his product unless the condition is rectified within a given time.

Herbert Quick Speaks.

"When the farm loan banks are in operation they will do more to open up the industry than even war orders," was the opinion given to farmers by Herbert Quick of the Federal farm loan board, Washington, D. C., in his lecture on Wednesday. "The farm mortgage does not bear fruit in 5 or 10 years" he said, "the farmer needs long time loans at a low rate of interest just the same as the public service corporation to make his investments pay."

Quail Campaign.

Taking advantage of a large group of farmers being together, the results of a mass meeting held on Wednesday opened a campaign to save Bob White was expressed thus, "Whereas, it is known that the quail is of vast importance economically to the farmer, be it resolved that the farmers assembled at the fifth annual farmers' week, recommend that the legislature take adequate measure to preserve the quail either by placing them on the song bird list or extending the closed season."

Dean Vivian Gives Lectures.

"No crops, no cattle; no cattle, no manure; no manure, no crops," was the keynote of Dean Alfred Vivian's illustrated lectures on "A Farmer's Trip Around the World" given in a series of talks at 4 p. m. each day. The University Chapel was taxed to its seating capacity of 1500 each afternoon with people waiting to see the best of 3000 foreign scenes all relating to farming across the water.

Rural Life Meetings.

"Ohio's cornfields are the 'Holy Land' to the people of the Buckeye State" was the thought brought out at the annual meeting of the country life association scheduled for the week. "Modern country life movements must be given a religious interpretation and the rural church must adopt them if it seeks progress" was the expression of Charles A. Cole, the president of the Ohio Rural Ministers' Association.

Poultry Meetings.

Poultry sessions held during the week were opened each day at 9 a. m. and 2 p. m. with discussions on all phases of the egg and poultry production work in Ohio. W. H. Card of Manchester, Connecticut, gave daily lectures on the scoring and judging of Plymouth Rocks, Leghorns, Rhode Island Reds, and Wyandottes with supplemental breed talks.

Ohio State Corn Show.

Entries of corn and small grains at the ninth annual Ohio State Corn Show were larger than usual and indicated that more interest was being taken in the exhibition of cereals since the organization of the Ohio Seed Improvement Association at Farmers' Week last year. J. H. Smeltzer of Agosta, Marion County, won the grand championship sweepstakes on the best ten ears of corn.

Week Shows Growth.

Interest for Farmers' Week in Ohio has steadily grown for 5 years; the first course on a week's instruction was attended by 473; the second by 783, the third by 1478, the fourth, 2892, and the last by 4046. The average age of the

men attending was 39 years; the number of farm women attending, 886; 79 percent of the men registered are operating farms. Every county in Ohio sent a delegation and 26 other states were represented.

TOWNSHEND SOCIETY ELECTS.

Townshend agricultural society held its first meeting of the second semester on February 12. The following officers were elected for the semester: President, Volney G. Applegate; vice-president, George F. Johnson; secretary, Carl R. Arnold; treasurer, James A. Howenstine; censor, Harold W. McChesney; critic, Melby W. Brady; sergeant-at-arms, Sanford G. Price, members of the executice committee, Richard C. Fisher, Guy W. Miller and Geo. F. Henning.

SADDLE AND SIRLOIN MEETS.

The Saddle and Sirloin club held its regular monthly meeting on February 14. After an interesting talk, by David Fyffe, superintendent of the University livestock, the following officers were elected for the second semester: President, Delmer C. Jobe; vice-president, Paul C. Warner; secretary Earl L. Johnson, and treasurer, John E. Hull. It was also decided at the meeting to hold the annual Ohio State Horse Show on Ohio Field, May 5. With the cooperation of last year's competitors it is expected that the show will be a greater success than ever. The following committees have been appointed to have charge of the show: Entries, Walter D. Hunnicutt, chairman; George L. Cassel and Paul C. Warner; awards, Herbert B. Marshall, chairman; Jesse E. Oakley and Charles H. Sprague; program, Howard F. Thwing, chairman; Brenton C. Zimmerman and Marion V. Bailey; publicity, Ralph S. Christen, chairman; E. M. McElwain and Guy W. Miller; grounds, Bernard Hatten, chairman; Earl S. Santee and Evert L. Shuck; tickets, Fred H. Hook, chairman, J. Blake Koons and Millard L. Jordan.

PLANS FOR CLUB WORK.

Plans have been completed for conducting the boys' and girls' club work for this season. Membership is now open to the following clubs: Pig raising, poultry raising, dairy cow record, potato raising, gardening and home making. Any boy or girl in the state between the ages of 10 and 18 may become a member. In order that the work of the Boys' and Girls' Clubs may be done to the best advantage, however, it is taken up thru the county and district superintendents of schools and the county fair association.

Each member of the pig club is expected to raise one or more pigs (preferably three), to keep records regarding their weight and feed and to exhibit them at the county fair.

Poultry club members will set at least two sittings of eggs from a pure-bred flock and keep records of the poultry raised.

Potato club members will raise from one-twentieth to one-eighth acre of potatoes and keep an accurate record of the cost and receipts.

Garden club members will raise truck on a plat from one-twentieth to one-tenth acre in size. Emphasis will be placed on the production of tomatoes.

Members of the home making club will receive instruction in the preparation and preservation of foods. Each one will exhibit different sorts of their products at the county fair.

WINTER COURSE COMPLETED.

At the final exercises held for the 8-weeks' winter course students in the Home Economics Building, 187 were given certificates showing that they had passed their work in five different branches of study. President W. O. Thompson, Dean Alfred Vivian and Secretary Verle C. Smith delivered short addresses. Music was furnished by the University Grange Quartette.

Nearly every county in the state was represented in this year's course and a number were from outside of the state. One man considered the work of enough importance to attend from the State of Montana. Pennsylvania, Indiana and West Virginia were also represented. The oldest man in attendance was 53 and the youngest 17.

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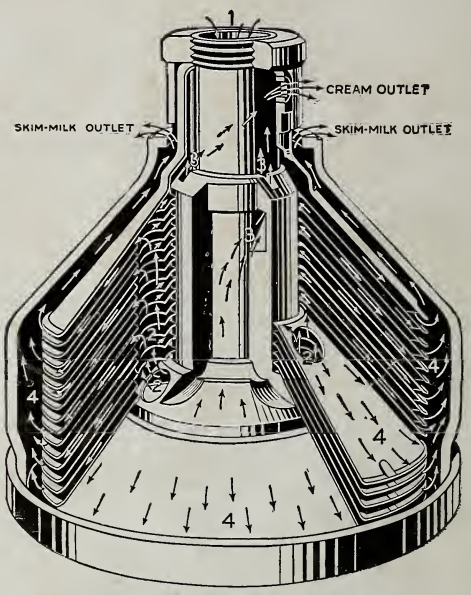

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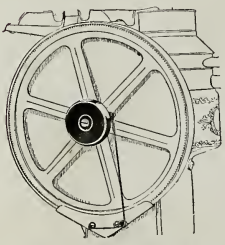

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